



DELHI POLICE 2025
CONSTABLE HCM AWO/TPO DRIVER

यकीन बैच

MATHS



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MATHS

Number System

(संख्या पद्धति)

Part -14

LIVE
streaming

03-02-2025 11:00 AM





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Number of Zeros



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93. What will be the number of zeros in $1 \times 2 \times 3 \times 4 \times 5 \times \dots \times 161 \times 162 \times 163$?

$32 \quad \frac{163!}{5} = \underline{1 \times 2 \times 3 \times 4 \times 5 \times \dots \times 161 \times 162 \times 163}$ में शून्यों की संख्या क्या होगी?

6 $\frac{32}{8}$
1 $\frac{4}{8}$

☒ (a) 39

(b) 40

(c) 38

(d) 35



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$$5^3 [1 \times 2 \times 3 \dots 53]$$

$$5^3 \times 53!$$

$$\begin{array}{r} 53 \\ 52 \\ 51 \\ 50 \\ 49 \\ 48 \\ 47 \\ 46 \\ 45 \\ 44 \\ 43 \\ 42 \\ 41 \\ 40 \\ 39 \\ 38 \\ 37 \\ 36 \\ 35 \\ 34 \\ 33 \\ 32 \\ 31 \\ 30 \\ 29 \\ 28 \\ 27 \\ 26 \\ 25 \\ 24 \\ 23 \\ 22 \\ 21 \\ 20 \\ 19 \\ 18 \\ 17 \\ 16 \\ 15 \\ 14 \\ 13 \\ 12 \\ 11 \\ 10 \\ 9 \\ 8 \\ 7 \\ 6 \\ 5 \\ 4 \\ 3 \\ 2 \\ 1 \end{array}$$

(49)

94. What will be the number of zeros in $5 \times 10 \times 15 \times 20 \times 25 \dots \times 265$?

$5 \times 10 \times 15 \times 20 \times 25 \times \dots \times 265$ में शून्यों की संख्या क्या होगी?

- (a) 65
- (b) 67
- (c) 66
- ☒ (d) 49



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$$\frac{100!}{5} = 20$$

$$\frac{20}{5} = \frac{4}{24}$$

95. Find the number of zeros at the end of 100!

100! के अंत में शून्यों की संख्या ज्ञात कीजिए।

(a) 22

(b) 23

(c) 21

☒ (d) 24



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~~475~~ 95

5

95

19

95

95

95

3

117

96. Find the number of trailing zero's in 475!

475! के अनुगामी शून्यों की संख्या ज्ञात कीजिए।

☒ (a) 117

(b) 137

(c) 147

(d) 127



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$$\approx (30)^{\frac{298}{10}}$$

Rightmost non zero digit

$$(3 \times 10)^{\frac{298}{10}}$$

$$\frac{298}{10} \times \frac{298}{10}$$

$$\frac{298}{10} \times \frac{298}{10}$$

97. What will be the number of zeros in $2 \times 4 \times 6 \times 8 \times \dots \times 100$?

$2 \times 4 \times 6 \times 8 \times \dots \times 100$ में शून्यों की संख्या क्या होगी?

(a) 8

(b) 12

(c) 0

(d) 5

$$2^{\frac{50}{2}} [1 \times 2 \times 3 \times 4 \dots 50]$$

$$\frac{50!}{8} \frac{10}{2} \frac{2}{12}$$



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2X5

98. What will be the number of zeros in the expression $1 \times 3 \times 5 \times 7 \dots 99$?

व्यंजक $1 \times 3 \times 5 \times 7 \dots 99$ में शून्यों की संख्या क्या होगी ?

(a) 24

(b) 12

(c) 10

(d) 0

(2X5)

2 → ① (#)

① प्रथम 100
अभाज्य संख्या
के गुणनफल में
शून्य की संख्या क्या
होगी?

$$\begin{array}{r} 1000000 \\ + 2200 \\ \hline 1002200 \end{array}$$

$$\begin{array}{r} 1000000 \\ + 2200 \\ \hline 1002200 \end{array}$$

$$\begin{array}{r} 1000 \\ + 200 \\ \hline 1200 \end{array}$$

② प्रथम अभाज्य संख्या को छोड़कर
बाकी सभी अभाज्य संख्याओं के
गुणनफल में शून्य की संख्या
क्या होगी?



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100. Find the number of zeros at the end of $200! \times 100!$

$200! \times 100!$ के अंत में शून्यों की संख्या ज्ञात कीजिए।

$$\begin{array}{r} 100 \times 1000 \\ \hline 100000 \end{array}$$

$$\begin{array}{r} 200! = 49 \\ \hline 100! = 24 \\ \hline 25 \end{array}$$

A) 68

B) 24

C) 49

D) 73

E) 25

$$\begin{array}{r} 200 \\ \hline 40 \end{array}$$

$$\begin{array}{r} 40 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 40 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 40 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 40 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 40 \\ \hline 8 \end{array}$$

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$$\begin{array}{r} 40 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 40 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 40 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 100 \\ \hline 20 \end{array}$$

$$\begin{array}{r} 100 \\ \hline 20 \end{array}$$

$$\begin{array}{r} 100 \\ \hline 20 \end{array}$$

$$\begin{array}{r} 100 \\ \hline 20 \end{array}$$

$$\begin{array}{r} 100 \\ \hline 20 \end{array}$$

$$\begin{array}{r} 100 \\ \hline 20 \end{array}$$

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$$\begin{array}{r} 100 \\ \hline 20 \end{array}$$

$$\begin{array}{r} 100 \\ \hline 20 \end{array}$$

$$\begin{array}{r} 100 \\ \hline 20 \end{array}$$

$$\begin{array}{r} 100 \\ \hline 20 \end{array}$$

$$\Rightarrow 73$$



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101. Find the number of zero in $50! \times 70! + 20!$

$50! \times 70! + 20!$ में शून्य की संख्या ज्ञात कीजिए।

$$\begin{array}{r} 50 \div 5 = 10 \\ 10 \div 5 = 2 \\ 2 \div 5 = 0 \\ \hline 12 \end{array}$$

$$\begin{array}{r} 70 \div 5 = 14 \\ 14 \div 5 = 2 \\ 2 \div 5 = 0 \\ \hline 16 \end{array}$$

(b) 12

(c) 16

(d) 5 $26 + 4$

4



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102. What will be the number of zeros in $5^{217} \times 2^{129} \times 6^{10}$?

$5^{217} \times 2^{129} \times 6^{10}$ में शून्यों की संख्या क्या होगी?

~~(a) 139~~

(b) 129

(c) 217

(d) 151

$5^{217} \times 2^{129} \times 2^{\frac{10}{2}} \times 3^{\frac{10}{2}}$

$2 \rightarrow 139$
 $5 \rightarrow 217$



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103. Find the no. of zeros in experssion: $1^2 \times 2^2 \times 3^3 \times 4^4 \times \dots \times 100^{100}$

अभिव्यक्ति में शून्यों की संख्या ज्ञात कीजिए: $1^1 \times 2^2 \times 3^3 \times 4^4 \times \dots \times 100^{100}$

(A) 1200

(B) 1300

(C) 250

(D) 1050

Miscellaneous

Imp:
Remainder theorem
शेषफल प्रमेय :

$$\begin{array}{r} 8 \overline{) 55} (6 \\ \underline{-48} \\ 7 \end{array} \rightarrow \text{pve Remainder}$$

$$\begin{array}{r} 8 \overline{) 55} (7 \\ \underline{-56} \\ -1 \end{array} \rightarrow -1 + 8 = 7$$

$$\begin{array}{r} 7 \overline{) 19} (2 \\ \underline{-14} \\ 5 \end{array} \rightarrow \text{शेषफल} \\ \text{(+ve remainder)}$$

$$\begin{array}{r} 7 \overline{) 19} (3 \\ \underline{-21} \\ -2 \end{array} \rightarrow \text{Negative remainder} \\ -2 + 7 = 5$$

$$\begin{array}{l} \text{Remainder} \\ \Rightarrow \frac{\overset{+2}{\cancel{58}} \times \overset{+1}{\cancel{29}}}{7} = \frac{2}{7} \leftarrow \text{Remainder} \end{array}$$

$$\begin{array}{l} \overset{-5}{\cancel{58}} \times \overset{+1}{\cancel{29}} \\ \hline 7 \\ \text{---} \textcircled{5} \text{---} -5+7 \\ \hline 7 = \textcircled{2} \end{array}$$

$$\begin{array}{l} \overset{-5}{\cancel{58}} \times \overset{-6}{\cancel{29}} \\ \hline 7 \\ \text{---} \textcircled{+2} \\ \hline \text{---} \textcircled{+30} \\ \hline 7 \end{array}$$

Eg: ① $\frac{\overset{+1}{\cancel{113}} \overset{+3}{\cancel{15}} \overset{+1}{\cancel{17}}}{4} = \frac{3}{4} \leftarrow \text{Remainder}$

$\begin{array}{r} \smile +4 \quad 8 \\ \cancel{823} \times \cancel{719} \\ \hline 9 \end{array}$
 $\frac{\cancel{32}}{9} \text{ (5)}$
 $\frac{1}{9}$

② $\frac{\overset{4}{\cancel{823}} \overset{-1 \smile}{\cancel{719}}}{9}$

$= -\frac{4}{9} = -4 + 9 = \text{(5)}$

③ $\frac{\overset{+5}{\cancel{525}} \overset{+3}{\cancel{091}}}{8}$

$= \frac{15}{8} \text{ (7)}$



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104. How many zeros are there in the product

$$1^{50} \times 2^{49} \times 3^{48} \times \dots \times 50^1 ?$$

गुणनफल $1^{50} \times 2^{49} \times 3^{48} \times \dots \times 50^1$ में कितने शून्य हैं?

(a) 262

(b) 261

(c) 246

(d) 235



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Reminder
(शेषफल)



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105. What will be the remainder if 8127 is divided by 8?

8127 को 8 से भाग देने पर शेषफल क्या होगा?

(a) 4

☒ (b) 7

(c) 6

(d) 5

$$\begin{array}{r} \cancel{8}127 \\ \underline{8} \\ 8 \end{array}$$



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106. When $(401+402+403+404)$ is divided by 4, what will be the remainder?

जब $(\cancel{401} + \cancel{402} + \cancel{403} + \cancel{404})$ को 4 से विभाजित किया जाता है तो, शेष क्या होगा?

- ☒ (a) 10
- ☒ (b) 2
- ☒ (c) 6
- ☒ (d) 3

$$\begin{array}{r} 10 \\ \underline{4} \end{array} \quad 2$$

$$\begin{array}{r} 6 \\ \underline{4} \end{array} \quad 2$$



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107. $\frac{342 \times 513 \times 852 \times 683}{17}$ What will be the remainder?

$$\begin{array}{r} \overset{+2}{\cancel{342}} \times \overset{+3}{\cancel{513}} \times \overset{+2}{\cancel{852}} \times \overset{+3}{\cancel{683}} \\ \hline 17 \end{array}$$

का शेषफल क्या होगा ?

- (a) 3 $\begin{array}{r} \overset{+2}{\cancel{36}} \\ \hline 17 \end{array}$
- (b) 4
- (c) 5
- ☒ (d) 2

108. If $14331433 \times 1422 \times 1425$ is divided by 12, then find the remainder obtained.

यदि $14331433 \times 1422 \times 1425$ को 12 से विभाजित किया जाता है, तो प्राप्त शेषफल ज्ञात करें।

- (a) 9
- (b) 3
- (c) 6
- (d) 8